

Remarks

Invention Summary and Background Remarks Relating to the Status of the Claims

Applicants disclose and claim a novel method and composition of matter for decontaminating water containing anionic contaminants, especially arsenic contaminants and chromate. The invention utilizes adsorbent compounds comprised of divalent and trivalent metal oxides and sulfides that sorb anionic contaminants through a mechanism that includes the formation of surface complexes with contaminant species.

Claims 1 – 8 were originally filed in this Application, however, following a restriction requirement, Applicants elected Group I, a process for removing anionic contaminants from water, Claims 1 – 4, without traverse. Applicants were also required to elect a species, and accordingly, Applicants elected the anionic contaminant species arsenic and the sorbent material CuFe<sub>2</sub>O<sub>4</sub>. Accordingly, claims 5 – 8 stand withdrawn from prosecution.

Under the present First (non-final) Office Action claims 1 – 4 stand rejected as anticipated by Sivavec ('570) under 35 USC 102(a) and as anticipated by Dawson, et al. ('831) under 35 USC 102(b). In the Office Action, the office also cited Eberly ('020) and Lee et al. (961), or obvious over Peters, et al., however, no specific rejection was stated as being based on those two references.

In response to the present Office Action, Applicants present the following argument in support of the claims as originally filed.

35 U.S.C. 102(a) – Sivavec

According to the Office, Sivavec discloses contacting water containing chromate with a treating agent comprising magnetite. Further according to the Office, this is all that is required by claims 1 – 4.

Applicants respectfully submit that Sivavec fails to disclose various features expressly recited in claim 1, that are carried forth into claims 2 – 4 by virtue of their dependency from claim 1. Sivavec lacks Applicants’ claimed element of a

“ . . . sorbent material that binds anionic species predominantly through the formation of surface complexes, . . . ” (Applicants’ claim 1, lines 3 – 4.)

Indeed, the Sivavec reference contains no mention of formation of surface complexes as recited in Applicants’ independent claim. Moreover, magnetite, *per se*, in the Sivavec invention has no sorbent function. Sivavec merely uses magnetite as a natural source of iron in connection with a reduction reaction designed in the context of the Sivavec disclosure to reduce chromate to insoluble trivalent chrome thereby rendering it less toxic.

In order for an anticipation rejection under 35 USC 102(a) to be supported, each and every element of the rejected claim must be found in the cited reference. Sivavec lacks any mention or suggestion of sorbent material that binds anionic species predominantly through the formation of surface complexes, as recited by Applicants’ claim 1. Therefore, Applicants respectfully submit that the rejection of claims 1 – 4 under 35 USC 102(a) should be withdrawn.

35 U.S.C. 102(b) – Dawson

According to the Office, Dawson discloses contacting water containing arsenate with a treating agent comprising magnetite. Further according to the Office, this is all that is required by claims 1 – 4.

As with the previous reference, Applicants respectfully submit that Dawson fails to disclose various features expressly recited in claim 1, that are carried forth into claims 2 – 4 by virtue of their dependency from claim 1. As was the case with Sivavec, Dawson also lacks Applicants' claimed element of a

“ . . . sorbent material that binds anionic species predominantly through the formation of surface complexes, . . . ” (Applicants' claim 1, lines 3 – 4.)

Again, the Dawson reference contains no mention of formation of surface complexes as recited in Applicants' independent claim. Further, as in the case of the previous reference, there is no mention in Dawson of using magnetite as a sorptive medium. Rather, in the instance of this reference, magnetite is used as a carrier particle to move sorptive media through a contaminated fluid.

As was stated in reference to the Sivavec reference, in order for an anticipation rejection under 35 USC 102(a) to be supported, each and every element of the rejected claim must be found in the cited reference. Dawson lacks any mention or suggestion of sorbent material that binds anionic species predominantly through the formation of surface complexes, as recited by Applicants' claim 1. Therefore, Applicants respectfully submit that the rejection of claims 1 – 4 under 35 USC 102(b) should be withdrawn.

Other Cited References

The Office also cited Eberly, as disclosing removing contaminants from a fluid with "spinel" type sorbent materials. In that patent, however, there is likewise no mention of formation of surface complexes as recited in Applicants' claim 1. Finally, the Offices cited Lee, et al., as disclosing removing arsenic contaminants from an aqueous medium with what the Office characterized as similar inorganic sorbents. The mechanism in Lee, however, involves removal of contaminants through ion exchange. Lee has nothing to do with formation of surface complexes as claimed by Applicants. Therefore, although the Office cited no specific basis for rejection, Applicants respectfully submit that neither the Eberly nor the Lee references render Applicants claims unpatentable.

Conclusion

Applicants submit that claims 1 – 4 are in condition for allowance. Reconsideration and withdrawal of the rejections as to those claims are requested. Allowance of claims 1 – 4 at an early date is solicited.

Respectfully submitted,



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